

The Brief Introduction to the Sino-US Joint Centers for Soil and Water Conservation and Environmental Protection

LI Jing¹, LI Rui¹, ZHENG Fen-li^{1,2}

(¹ Northwest Sci-tech University of Agriculture and Forestry, Yangling, Shaanxi 712100 China)

² The State Key Laboratory of Soil Erosion and Dryland Farming on Loess Plateau, Institute of Soil and

Water Conservation, Chinese Academy of Science and Ministry of Water Resource, Yangling, Shaanxi 712100 China)

Abstract Erosion and transport of soil has worldwide implications for agriculture landscape stability, climate natural hazards, and clean renewable resources of water and air. Assured access to clean water and a healthy and safe environment requires an ethic of conservation and protection. The minimum scale in which these principles apply successfully is basin wide. These are the fundamental concerns of the Sino-US Centers for Soil and Water Conservation and Environmental Protection.

Key words soil and water conservation; environmental protection; Sino-us Joint Centers

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1 Goals and Principal Research Themes

1.1 Goals

(a) Understand the processes that affect soil and water conservation and environmental protection.

(b) Develop and/or identify better management practices to conserve soil and water and to protect the environment.

(c) Disseminate information and educate those that may use or expand upon the Centers' accomplishments.

1.2 Principal Research Themes

1.2.1 Sedimentation Processes

Understand and predict the processes of wind, water, and gravity erosion, sediment transport, and deposition as they affect landscape stability, water quantity, air and water quality, agriculture and the environment. Scales range from farm fields to entire river basins.

1.2.2 Climate

Analyze and evaluate the interactions among climate and plant responses, soil erosional processes, and environmental quality. Research includes local, regional and global scales.

1.2.3 Soil, Water and Environmental Conservation

Assess the social, economic and environmental factors that influence effective management for sustaining soil, water and environmental resources. Research includes use of decision-support tools to predict the potential consequences of various management options.

1.2.4 Watershed Ecosystems

Examine watershed ecosystems to: (a) identify and

model selected physical, chemical and biological attributes of ecosystems; (b) select the indicators of watershed ecosystem health; and (c) determine the susceptibility of watersheds to climate variability.

1.2.5 Agriculture and Environment

Understand and predict watershed productivity and water resource capacity affected by land use, vegetative cover and climate – and develop farming practices for semiarid lands to maximize water use efficiency and agricultural production while minimizing adverse local and off-site environmental impacts. Research includes demonstration projects – vegetation restoration, for example – that exploit adapted plant resources and emerging technology.

1.2.6 Information Services and Technology Transfer

Assess, manage and publish data and information resources for research, education and public service.

2 Attributes of the Centers

The Sino-US Centers for Soil and Water Conservation and Environmental Protection (hereafter, Centers) conduct research, develop scientific tools and technology, and introduce improved methods for agriculture and other human pursuits that conserve soil and water and protect the environment through information exchange, education and proactive extension services.

2.1 Management and Oversight

The Centers are co-located in the Northwest Sci-tech University of Agriculture and Forestry in Yangling, Shaanxi, China, and the University of Arizona in Tucson,

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Biography: LI Jing (1945-), male, born in Fengxiang county, Shaanxi province, major field: soil and water conservation.

Arizona USA. Each Center manages and funds practices that allow optimum functioning within the respective country. A Joint Oversight Committee (JOC) represented by both countries provides a means for independent scientific review and guidance

2.2 The JOC

- * maintains cognizance of the activities of the Centers
- * develops long-range plans and scope of work,
- * maintains procedures for proposal and project review and for visiting scientist and student exchange programs
- * assesses and prepares annual reports of progress and plans
- * conducts 5-year reviews of the Centers
- * administers the bilateral agreement between the two countries, and
- * collaborates in joint press releases public relations and activities to promote the Centers including publication and open access to data and information

The JOC is comprised of six members three appointed from each country. The JOC meets annually, alternating between countries. The JOC Chair position alternates yearly between China and the US with a Vice-Chair from the US when China holds the Chair and vice versa

2.3 Virtual Centers

China and the US maintain “virtual” centers, principally for coordination of activities distributed in participating agencies and universities throughout the respective countries. A Director heads each Center. The management structures accommodate the tenets, programs and goals outlined in these Terms of Reference. Signature agencies are designated to represent each arm of the Joint Centers to liaise with appropriate agencies to advocate and voice interagency views for the Center, and otherwise serve as lead agency. The lead agency responsibility for the PRC is shared between the Ministries of Education (MOE) and Agriculture (MOA). The US signature agency alternates among participants. Each country’s Center coordinates manages and staffs participation in the Sino-US Centers. Each Center

- * assists U. S. and Chinese researchers in identifying funding opportunities, new projects and research collaborators,
- * arranges meetings and workshops required under the bilateral agreement,
- * develops annual reports and other documents as directed by the respective Oversight Committees and lead agencies,
- * serves as a point of focus for information on each Center and their individual and collective activities,
- * maintains an agreed upon scope of work consistent with objectives and JOC directives, and
- * maintains high technical standards through scientific review.

To assist in the above functions each Center maintains a Scientific Steering Group (US and China SSGs) to advise the Centers and the Oversight Committees.

2.4 The US and China Scientific Steering Groups (USSSG and CSSG)

The SSGs are rosters of scientists knowledgeable of the principal research themes of the Centers and are a resource for technical review and guidance. The rosters will be consulted by the Directors of the Centers for specific review, advisory and representational purposes. Members (non-participants in research supported through the Centers) will be nominated by the Directors of the US and China Centers and appointed by their respective Oversight Committees.

2.5 Scientific Panels Drawn from the SSG Rosters

Periodic critical program review and guidance are obtained from independent scientific panels appointed by the JOC. The panels advise and report to the JOC on such matters as

- * the Centers’ scientific plans and overall scientific integrity,
- * new research themes,
- * participation in international research programs, and
- * strategies to publish results in peer-reviewed, widely accessed technical journals.

2.6 Proposal Review and Approval

Proposals for research undergo technical peer review in a process endorsed and monitored by the JOC. The process generally follows those of the respective National Science Foundations including at least three technical reviews for each proposal.

2.7 Visiting Scientist Program

The Centers encourage and facilitate exchanges of scientists who may be guest lecturers, project participants, invitees to conferences and workshops or members of technical review teams.

2.8 Student Exchange Program

Education is an important activity of the Centers. Competitive foreign travel opportunities are provided for students to participate in, for example, college-level course work, joint research, writing of joint papers and proposals, and preparing and sharing working databases.

2.9 Private Sector Training Program

Private industry, agriculture and commerce serve and are served by the research of the Centers. The JOC seeks opportunities for training in the private sector for students and participating researchers who wish to obtain practical experience and a better understanding of the communities who apply research results. Private sector personnel are also encouraged to develop cooperative research and product development agreements with the scientific community.

2.10 Funding

The Centers maintain the “receiving side pays” policy to

support some exchanges of scientists traveling between China and the US; however, the Centers also plan and implement cooperation missions from funds held in the joint Center accounts. The Centers strive to maintain contributions of support from the participating ministries and agencies in China and the US.

2.11 Information Access and Publication

Publication and open access to data and information are fundamental to the Centers' credibility and function. All data produced under the auspices of the Centers are available to the research community at large for free or where appropriate, for the cost of reproduction and transmittal. Both US and China Centers maintain websites posting on-going projects and plans, project highlights, data holdings and the means by which they may be accessed. Each website contains directories of data and contact points for participating laboratories, agencies, educational institutions, projects and other potential sources of information and resources. Both Centers encourage publication of data and information, organize technical sessions in national and international meetings and respond to information needs.

The Centers also collaborate in maintaining a Center Website with specified standards for presentation of the individual and joint websites. The joint website provides a common entry for public access to general information, program plans and key research results.

3 US Participation

3.1 US Oversight Committee

The initial US Oversight Committee (USOC) members include one representative from each of the charter US agencies (USDA, DOI/USGS, NSF and USA). The USOC function parallels that of the Centers' JOC. The chair represents the views of the USOC and is one of the three USOC members represented on the JOC. Other US agencies participating in the Centers providing funds and/or in-kind support may be offered membership to the USOC with eligibility to sit on the JOC. The chair of the USOC rotates among participating agencies every two years.

3.2 Funding

Based upon submission and approval of proposals, the NSF and other US government agencies fund the principal operations of the Center and entertain research proposals that address the Centers' principal research themes. The USDA and DOI/USGS provide laboratories, data banks, management and technical personnel and collaboration opportunities based on need and availability.

When using the "receiving side pays" policy, the agencies support the travel of their own personnel in the United States and to/from China and provide the expenses of

collaborating Chinese scientists while traveling within the US. The USGS and USDA help support operations of the Center and university-based research proposals when funds permit. All proposals to be considered for funding are coordinated through the Center. Availability of travel support is determined on a project-by-project and case-by-case basis.

Other programs of support that are accessed by the Centers will pay for joint activities using the most practical and flexible methods to support the Centers' research, development, training and outreach activities.

4 Chinese Participation

4.1 Chinese Coordination and Oversight Committee

The Chinese Coordination and Oversight Committee (CCOC) is led jointly by the Ministry of Education (MOE) and the Ministry of Agriculture (MOA) and is comprised of officers from the National Natural Science Foundation of China (NNSFC), Ministry of Science and Technology (MOST), MOE, MOA, Ministry of Water Resources (MWR), State Forestry Administration (SFA), State Bureau of Foreign Experts (SBFE) and Chinese Academy of Sciences (CAS). The Committee Co-chairs are Ministers from the MOE and MOA with member representatives from each of the Ministries named above.

The Division of International Cooperation and Exchange in the Ministries that chair the Committee provide the personnel to staff a Chinese Center Secretariat. The Secretariat (a) assists Chinese and US researchers in identifying funding opportunities, new projects and research collaborators; (b) arranges meetings and workshops required under the bilateral agreement; (c) develops annual reports and other documents as directed by the CCOC; and (d) otherwise serves as the Chinese point of focus for information on the Center and its activities. The Secretariat is responsible for maintaining an agreed-upon scope of technical work consistent with the objectives of the Centers and CCOC directives, maintaining productivity and high standards through technical review, for Chinese participation. To assist in this function, the Secretariat receives guidance from a Chinese Scientific Steering Group (CSSG) to advise the Chinese Center and scientists.

4.2 Funding

The Chinese and US scientists submit project proposals to Chinese Ministries and the NNSFC within the agreed-upon technical themes for the Centers. The CCOC seeks support for key projects and important measures that are in synchrony with government policies related to soil and water conservation and environmental protection. The CCOC coordinates the support to the NW SUIAF for the maintenance of the Center in Yangling and its programs.